



# PRELIMINARY SUBMISSION ON THE DRAFT IRP2018

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# GENERAL

*BUSA welcomes the opportunity to present our preliminary comments on the draft Integrated Resource Plan (IRP) 2018 to the Parliamentary Portfolio Committee on Energy. Please note that these comments are preliminary and may be subject to changes or additions before final submission to the Department of Energy on 26 October 2018.*

BUSA is pleased to note that the draft IRP (2018) appears to have addressed the majority of the key challenges with the previous version. In particular we are pleased to note that the draft IRP 2018:

- Recognises that an unconstrained renewable technology scenario is the least-cost option to 2030.
- Provides for flexibility, recognising that forecasts would need to be reviewed regularly.
- Provides information on the policy adjustment scenarios allowing for a better understanding of their rationale.



# INPUT PARAMETER ASSUMPTIONS

Though the revised demand forecasts are much more rational and conservative than used previously, the median demand used for most of the scenarios at 1.8% is arguably still too high, given the real declining demand for electricity. In addition, the demand forecast for the reference case (IRP1) assumes a high economic growth scenario, at an average 4.26% GDP growth. However, South Africa's economy is currently in a technical recession and growth prospects are marginal.

Current trends show a decoupling of GDP growth to electricity usage, with lower electricity consumption relative to economic growth. In addition, electricity consumption has been stagnant over the last 8 years.

The reference case (IRP1) and other scenarios should therefore rather assume the lower GDP forecast of 1.33% and the lower demand forecast of 1.21% by 2030.

BUSA supports a biennial review of the IRP to accommodate the pace of change in this space. Planning and building flexibility is required to ensure that we are not left with stranded assets. The pace and scale of all additional Megawatts (MW) must also be considered carefully in line with potential variation in demand.

There are several issues that may affect demand variation, including potential further delays in the commissioning of Medupi and Kusile or a decision not to proceed with the commissioning of all the remaining units of these facilities; lower than assumed energy availability factors; earlier than planned decommissioning due to technical or environmental compliance. The revised document should address these issues.

# IMPACT OF EMBEDDED GENERATION, ENERGY EFFICIENCY AND FUEL SWITCHING ON DEMAND

It is likely that the impact of these developments has been underestimated; indication from our members regarding embedded generation projects is that current pending applications for deviation from the current promulgated IRP2010 are already in excess of the 200MW/annum allocation.

It is acknowledged that:

- The data informing these developments in the draft IRP is lacking.
- The inclusion of these developments was done in recognition of the impact on overall electricity demand and intensity and must be therefore considered when projecting future demand and supply of electricity.
- There is no technical or rational basis for the 200MW/annum allocation for embedded generation.

Deep penetration of embedded generation that is not accounted for could lead to over building of other capacity, therefore BUSA proposes that the allocation be increased to at least 500MW/annum to provide for current and possible additional projects, which may be in excess of 10MW each. BUSA further proposes that work to capture accurate and current information is urgently undertaken reduce uncertainty in the next IRP review in two years.

In addition, current and pending applications requiring Ministerial consent for deviation from the current promulgated IRP2010 must be expedited.



# TECHNOLOGY, FUEL AND EXTERNALITY COSTS

Overall, the technology costs used are more accurate and rational than the previous version of the plan and clearly indicate that the least-cost energy mix is one of Wind, Solar PV and Gas. BUSA accepts that for the period modelled, this mix is least-cost and will have the least impact on the environment.

The technology costs for renewable technologies have been updated to reflect the more recent Renewable Energy Independent Power Producer Programme (REIPPP) published costs (Bid Window 4). It is accepted that these costs continue to decline, and it would be impractical to continue updating the IRP as costs change. Biennial reviews of the IRP should be able to capture the trend.

Section 3.2.2 refers to GHG emissions, however the section actually only deals with air pollutants, such as nitrogen oxide (NO<sub>x</sub>), sulphur oxide (SO<sub>x</sub>), particulate matter (PM) and Mercury (Hg)... These air pollutants are not greenhouse gases. Furthermore, it is stated later in the section that the costs associated with carbon dioxide (CO<sub>2</sub>) are not included as the CO<sub>2</sub> emissions constraint imposed during the technical modelling indirectly imposes the costs to CO<sub>2</sub> from electricity generation. In fact, the emissions constraint deals with all six GHG emission as CO<sub>2</sub> equivalents.

This section should therefore be amended to reflect that it deals with the externality costs associated with air pollution and that all GHG emissions are dealt with as part of the CO<sub>2</sub> emissions constraint under section 3.4. Section 3.4 should also be clear that it includes all GHG emissions as CO<sub>2</sub> equivalents.

# INSTALLED AND COMMITTED CAPACITY

The Eskom New Build Project (Medupi and Kusile) has been plagued with delays and cost overruns. This has had a significant impact on the reliability and security of supply of electricity and contributed to load shedding, as well as to steep tariff increases.

Though Eskom has demonstrated improvements in the management of the programme with respect to the commercial operation dates of the new units, caution must be exercised with these assumptions.

Contingency scenarios ought to be modelled considering the implications of Medupi and Kusile units being commissioned earlier or later than assumed, or if it is decided not to complete the remaining units of these stations.



# ESKOM PLANT

## **Existing Eskom Plan Performance**

Eskom's plant availability has been declining steadily and is below optimum levels (currently at around 72%).

The draft IRP2018 assumes a medium plant performance at around 80% Energy Availability Factor (EAF).

BUSA acknowledges and supports Eskom's efforts to improve the EAF of its fleet, however a scenario ought to be modelled addressing the event that the load availability is less than assumed and closer to the current plant availability.

## **Existing Eskom Plant Life (Decommissioning)**

BUSA notes that the full impact of decommissioning the existing Eskom fleet was not studied fully as part of the IRP Update, and that the socio-economic impact of the decommissioning of these plants was not quantified. BUSA further notes that the plan recommends a detailed socio-economic impact analysis is undertaken for the post-2030 period. BUSA requests that a socio-economic impact analysis is undertaken on the next iteration of the IRP – in two years. There will be plants decommissioned before 2030 (12600MW) and this will have impacts on communities. This must be addressed sooner rather than later.

Decommissioning of coal-fired power stations linked to Air Quality Act (NEMAQA) requirements is mentioned for at least 6 stations is mentioned, these stations are not reflected in the decommissioning schedule in appendix B, table 8. The revised NEMAQA Framework is also likely to have a more significant impact on the life of current coal fleet than the current framework. The costs of compliance ought to be modelled. In addition, a scenario must be run to address the event that Eskom's plants are decommissioned earlier than planned due to technical and/or environmental compliance requirements.

# CO<sub>2</sub> EMISSIONS CONSTRAINTS

The inclusion of a policy constraint on greenhouse gas emissions, in line with our Nationally Determined Contribution (NDC) under the United Nations Framework Convention on Climate Change's (UNFCCC) Paris Agreement (PA) is supported. Emissions from electricity generation account for over 40% of South Africa's emissions; it therefore makes sense that emissions from this sector are drastically reduced. BUSA believes that the best instrument to reduce emissions in this sector is the IRP.

The modelling of the emissions constraints against the Peak, Plateau and Decline (PPD) trajectory under the NDC has been requested from the DoE. This information must be published in order to determine whether the constraints in the IRP are sufficient to achieve reductions in this critical sector and whether additional instruments, such as the proposed carbon tax are required to reduce emissions for this sector.

Though it is understood that the Carbon Budget included in the draft IRP2018 is based on requirements given by the Department of Environmental Affairs (DEA) the actual approach needs to be clarified in the final version of the IRP to facilitate alignment of the different carbon reduction instruments that are being contemplated.





# RECOMMENDED PLAN

## **Applied policy adjustment and considerations in the final proposed plan:**

Even with the policy adjusted annual limit to provide for a “smooth roll out of RE, which will help sustain the industry.”, there is no new capacity from wind or solar in 2022,23,24. This gap may be detrimental to this industry as already shown in the delay of signing the expedited round of REIPPP. The REIPPP has been identified as providing significant opportunities for localisation. However, experience has shown that a stop-start approach to the projects has a negative impact on investment, which can be improved with a smoother procurement trajectory, that gives greater certainty to prospective investors in the inputs to renewable projects.

Inclusion of 1000MW of coal-to-power in 2023-2024 is based on two already procured and announced projects and motivated in part by job retention/creation. It is understood from the DoE that these were included because the IPP process for coal must be honoured, as was the expedited round of REIPPP (27 projects).

However, the two coal IPPs are currently facing legal and financial challenges which are expected to delay or halt the projects entirely. This would have an impact on the pace and scale of the proposed capacity programme and a scenario where this capacity is delayed or halted should be modelled.

In addition, the inclusion of the two coal IPPs increases the total system cost by R20 billion (UCT ERC, cited by Enertrag 2018). This is confirmed by the IRP2018 in figure 19:3 R-cents/kWh increase in the early 2020s. Any additional capacity will add to the already high electricity tariffs, it is therefore vital that the pace and scale of any additional capacity is only commissioned as required and that the cost is kept as low as possible to mitigate the impact on the end consumer.

# REGIONAL PLANNING

## On Gas:

- o The Gas Utilisation Master Plan (GUMP) is crucial. This is the only plan that will clearly state where the gas will come from and the costs.

## On Hydro:

### Grand Inga:

- Assumptions related to the commercial operation date for this project must be clarified, as well as aligned to transmission planning required as there is still a concern of further delays.
- Details of additional studies to be done over the medium term, considering the challenges related to risks associated with executing the operation must also be clarified.

THANK YOU

